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ABSTRACT

Stuttering is a complex condition, and, in the past, there was not significant evidence to prove any one theory as to its cause. Most researchers now agree that stuttering is mainly a genetic disorder that is sometimes aggravated or brought on by developmental and environmental factors. In genetic research there have been studies on families in general and on twins; both have suggested the strong genetic component involved in stuttering. Research on the biological causes of stuttering has shown that stutters have problems decoding and encoding the components of speech. Some researchers also believe that stutterers use the right side of the brain for speech, instead of the left. Research on the developmental causes of stuttering shows that the way a child grows physically can affect his/her speech. Research has also shown that the parents of stutterers are more critical and anxious than parents of nonstutterers. Events that have an impact on the stability and security of a child have been known to also bring on stuttering. In the assessment and treatment of stuttering there are several steps that clinicians usually follow: the gathering of background information, the observation of present behavior and feelings, the diagnosis, and the closing interview. The interview between in the child and the clinician is usually regarded as the most important part of this process. The therapy process is usually in four phases: identification phase, desensitization phase, modification phase, and stabilization phase. (Contains 12 references.) (TB)

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The Attributes of Stuttering

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Abstract

This paper will explore the attributes of stuttering. It will discuss the many different causes of stuttering. Secondly, this paper will examine the characteristics that may contribute to stuttering. Next, the paper will discuss the assessment and diagnosis of a child who has a stuttering problem. Finally, the paper will discuss two types of therapy used in stuttering.

THE ATTRIBUTES OF STUTTERING

Stuttering is very complex speech problem. The causes of stuttering are undetermined. Many researchers believe that stuttering is caused by the environment, while some believe that it is passed down genetically. Many believe that stuttering is caused by a combination of factors, such as genetics, the environment, and life events. When assessing a child with a stuttering problem, there are several components to consider, such as background information, the observation of feelings, and the diagnosis. When treating someone who stutters, there are two main types of therapies used for stuttering, one is Charles Van Riper's easy stuttering, and the other is fluency shaping.

Stuttering is characterized by an abnormally high frequency and/or duration of stoppages in forward flow of speech. Stoppages take place by: repetition of sounds, syllables, or one syllable words, prolong sounds, blocks of air flow, and voicing in speech. Distinctions need to be made between stuttering and normal hesitation. When children are developing their language and speech, they may have pauses, and repetitions. In adult cases, repetitions and pauses are normal when the speaker is in a hurry or is uncertain. Stuttering is most likely to occur between ages of 2 and 5 (Peters & Guitar, 1991) . Stuttering is not only a disorder of making sounds, but also a problem related to using spoken language in meaningful communication.(Peters & Guitar, 1991) Stuttering occurs in boys more than girls, but boys tend to grow out of it and girls do not.

For a long time, researchers could not agree on the reason for stuttering. Some believed that it was passed down genetically, others feel that it is something that is learned. In the last two decades, most people have accepted the version of genetic

hypothesis along with other factors such as development and environment as contributing factors.

While researching the hypotheses of stuttering being genetically passed down, researches studied two areas: the first being that of family studies and the second that of twin studies.

In family studies, researchers looked at family trees, interviewed family members, and took down important data such as age, sex, and other important factors. A study done by a geneticist at Yale University, Kenneth Kidd, and his co-workers, found that males were more likely to stutter than females; females who stuttered were more likely to have first degree relatives who stuttered (Kidd, Kidd & Records, 1978). This supports the theory that it is passed down through the family.

The second study done by researchers was that done on twins. Twin studies have shown that stuttering occurs more often in both members of the identical twin pairs than in both members of fraternal twin pairs (Andrews, Morris-Yates, Howie, & Martin, 1990). Although this supports the hypothesis that stuttering is inherited, the study also proved that heredity does not work alone. In one case of 6 out of 16 identical twin pairs, 1 twin stuttered while the other didn't (Howie, 1981). This suggests that environmental factors are also at work.

Although much research provides evidence that stuttering is passed down in the family, researchers have not yet found the physical differences that exist in stutterers . This physical evidence would give rise to the symptoms of stuttering.

When comparing stutters and nonstutters, one must look at several areas. Research has been done on the difference between the two in several areas such as

intelligence, school performance, speech and language development, sensory motor coordination, and right hemisphere processing.

Researchers had found that both verbal and nonverbal intelligence is slightly lower in stutterers as a group (Peters & Guitar, 1991). Another study done by Bloodstein suggests that stuttering might be linked to some inadequacy in linguistic and/or motor processes (1987). Van Riper observes that among those who are mentally retarded, the less intelligent have a higher incidence of stuttering than the more intelligent (1982). Peters and Guitar conclude then " their increased stuttering then would reflect that deficits in linguistic ability, motor ability, or both, increase the likelihood of stuttering" (Peters & Guitar, 1991).

Stutterers tend to be a grade level behind, and they usually test lower on the achievement tests. A couple of reasons this may happen are because stutterers have difficulty talking and secondly because of a deficit in language-related skills. In verbal environments, the stutterer is at a disadvantage.

While searching for a physiological basics of stuttering, researchers investigated different parts of the speech mechanism. Faulty timing may be a cause of stuttering. Some researchers believe the problem lays in how the stutterer hear themselves speaking. Several studies have shown that stutterers as a group perform more poorly then nonstutterers on talks which require a discrimination of small time differences in signals. Researchers have tried to link this deficit by suggesting that a single mechanism in the brain may control timing for both incoming and out going signals (Peters & Guitar, 1991).

Stutters also have problems decoding and encoding the components of speech. This explains why stutters as a whole are slower in their reaction times. In research done by Starkweather, Hirschman, and Tannenbaum, they found that stutterers were slower in reacting with exhalation and lip closing (1976). In another study by Till, Riech, Dickey, and Sieber, they found that stutters were slower in 'tracking', which is a tone that goes up and down in pitch (1983). In some cases, stutterers were faster in reaction time than non-stutters, just as some stutterers where slower than non-stutterers (Peters & Guitar, 1991).

On the other hand, some researchers believe that the problem with stuttering is related to which half of the brain is dominant for speech. Researchers believe stutterers use the right side of the brain, while non-stutterers use the left. The left hemisphere of the brain can process changes quickly, while the right side of the hemisphere is set up for slow changes. In a study done by McFarland and Moore, stutterers have shown to have more electrical and chemical activity in the right side of the brain. In their book, Peters and Guitar states that "the implications for the onset of stuttering in childhood, when many functions, presumably including speech and emotion, appear to be bilateralized" (1991).

Other areas that researchers believe may have some effect on stutterers, are developmental and environmental influences. Developmental and environmental influences rarely interact alone, but usually interact with constitutional factors. Evidence for developmental factors come from the fact that the onset of stutterers almost always occurs when children are growing mentally and physically (Wingate, 1983). Evidence supporting environmental influences is that there is a high prevalence of stuttering in cultures that are more achievement and conformity oriented.

One area of developmental influences is physical. Between ages 1 and 6, children are growing a great deal. Peters and Guitar state that "one way physical developmental may affect speech is when physical growth and vocal tract occurs rapidly" (1991, pg. 46). They also state that " physical development is also related to fluency because speaking is a physical (motor) skill" (1991, pg. 46).

Social and emotional development may contribute to stuttering. When children are emotional, they may have fluency problems. Peters and Guitar state in their book that the reason this may happen is because "neural signals for properly timed and sequenced muscle contractions may be degraded in some way" (1991). Excitement may also cause some disfluency. Starkweather states that "all children speak disfluently during periods of excitement" (1987). One last social or emotional area that may cause problems is in the family. The problems in the family may cause temporary disfluency or make stuttering more severe.

In speech and language development, stuttering begins when development is rapid (Bloodstein, 1987). A child is learning a lot of different vocabulary words every year. Children may become disfluent at intense stages of language development When a child feels pressured to increase his or her vocabulary, it puts the child at risk to stutter.

An environmental factor that plays an important role in a child's life is that of the parents. Peters and Guitar state that "stutterer's parents were found to be more perfectionist and to have higher standards of behavior then other parents" (1991, pg. 53). A study done by Zenner, Ritterman, Bowen and Gronhovd, 1978, suggests that stutterer's parents are more rejecting or anxious than parents of nonstutterers. There are a lot of children who have demanding parents, who do not stutter, but if the child is vulnerable

then the chances increase. Odds are that the parents do not work alone. A stutterer's siblings may have some in luence. Often children are pressured to compete with their brothers and sisters. The e vironment at the home is only one, and may not be a factor at all for some stutters (Peter & Guitar, 1991).

In the speech and l nguage environment, there is some evidence that it also plays a role on stutterers. Peters nd Guitar state "clinical observation and research suggest that stuttering occurs when chil ren use more advanced forms of speech" (1991). A preschool child's speech ad language are heavily influenced by others around him, especially that of his paren s. Van Riper suggest the child may be vulnerable to this pressure when he is most r pidly developing language:

> "Stuttering usually egins at the very time that great advances in sentence construction occur nd it seems tenable that, when the speech models provided by the parents or sibli gs of the child are too difficult for him to follow, some faltering will ensue (1973).

Life events in a chi d's life can cause a impact on their stability and security. When something like this happens, stuttering can appear out of nowhere. Such events could be: the death of a cl e one, a parents divorce, or being hospitalized. Starkweather (1987) says "All children s eak more disfluently during periods of tension-when moving or changing schools, when heir parents divorce, or after the death of a family member." There is very little researc done on the relationship between life events and stuttering, but Peters and Guitar state hat "in most cases they find that children are already showing signs of stuttering, and wh n they encounter a stressful life event, then their stuttering increases dramatically" (1 91, pg. 58).

In the assessment and diagnosis of stuttering there are several components. These are: background information, observation of present behavior and feelings, diagnosis, and the closing interview. Assessment is the initial data-gathering, while the steps used to collect this data, to decide if the client is a stutterer, and to specify the treatment appropriate for the client, is the diagnosis.

In the assessment of the child, it is best to observe interaction between the child and their parents. Peters and Guitar suggests this for several reasons.

> "First, parents may be less affected by our orientation toward stuttering and may thereby give us a more natural sample. Second, this interaction gives us a chance to se the child's stuttering first-hand. ...Third, we can observe the ways in which the parents interact with their child. Do they interrupt? Do they correct?..." (1991).

The parent child interaction can be done one of two ways, formally or informally. Some people prefer to work in waiting rooms and take mental notes, others prefer to work in preschool programs, while some prefer to use videotapes.

In the parent interview, the clinicians let the parents know what kinds of things are going to be done. It is a time for the parents to ask questions, and to share opinions and recommendations. Peters and Guitar suggest to "try not to give advise about what they should change or what they should do until we have interviewed the parents and assessed the child directly" (1991).

The most important part of the evaluation is the interaction between the clinician and the child (Peters & Guitar, 1991). Peters and Guitar suggest that they focus their interaction on toys and games suitable for child's age. They suggest refraining from asking questions at first (1991). Peters and Guitar list a set of goals when discussing the child's disfluencies. "They are: a) to see if the child is accepting of himself and

disfluencies enough to discuss them and b) to indicate to the child that he is not alone with the problem and, moreover, that we may be able to help him." (1991). When children won't talk, avoid asking direct questions. Take time to play with child and talk to them; after awhile the child might relax.

Peters and Guitar suggest for a person to asses the child's feelings about stuttering by asking them about in the parent interview, by observing the parent-child interaction, and by bringing up the topic of stuttering (1991). Feelings can range from unawareness to extreme hypersensitivity. The clinician uses the assessment of feelings and attitudes to determine whether the child is aware of disfluency.

Once the clinician has gathered all the information, the next step is the diagnosis. The clinician decides whether the child needs treatment or not, and if so at what level should he/she be placed. These decisions are made on the data from all the sources in the evaluation.

In the diagnosis of the child to be considered normal disfluency, the child must have all of these characteristics: fewer than 10 disfluencies per 100 words, consist of more multisyllable and phrase repetitions, revisions, and interjections. The repetitions will have two or fewer repeated items per instance of disfluency, and the repetitions should be slow and regular (Peters & Guitar, 1991). When diagnosing a child with borderline stuttering, he or she should have more than 10 disfluencies per 100 words, and may have repetitions and single-syllable word repetitions, as well as prolongations. The repetitions will be more than two per instance (Peters & Guitar, 1991).

Peters and Guitar state that when diagnosing a child with beginning stuttering, there are quick and abrupt repetitions. Also, there will be pitch rises during repetitions

and prolongations, difficulty getting airflow, and some evidence of facial tension. They also state that the beginning stutter is aware of his or her stuttering and is very upset about it (1991).

In stuttering modification therapy there are two key elements, one is teaching the stutter to modify his moments of stuttering and the other is. reducing his fear of stuttering and eliminating the avoidance behaviors associated with this fear.

Charles Van Riper is the leading supporter in therapy for advanced stutterers. He believes that when a person stutters, there is a disruption in the proper timing and sequencing of the muscle movements involves in producing a word (1982). Van Riper has four stages of the therapy process. They are identification phase, desensitization phase, modification phase, and stabilization phase.

The purpose of the identification phase is for the stutter to identify the behaviors, feelings and attitudes. Van Riper feels that if the stutterer is going to change, he or she must become aware of what needs to change. Van Riper recommends that the area of the client's stuttering be identified in hierarchical order. First, the clinician helps the stutterer identify easy stutterings in his speech. Secondly, one must identify sound, word and situation fears along with core behaviors and escape behaviors. Finally, feelings of frustration, humiliation, and animosity will be identified and accepted. These components must be first identified in the clinic and in the stutterers environment. Once the stutterer and identified and discussed the aspects of his or her stuttering, then he/she can move on to the second state (1982).

The objective of the desensitization stage is to curtail the fears and other negative emotions. Van Riper feels there are three features of stuttering which the stutterer needs

to desensitize; a) the confrontation with the disorder, b) the core behaviors, and c) the reactions of his listeners (1982). In short, the stutterer needs to become tolerant of these aspects of his stuttering problem. Once the stutterer is less emotional about his stuttering and people's reaction to it, then he is ready to move on to the third phase, modification.

During the modification phase, the stutterer learns a new fluent way to stutter. The stutterer learners to use Van Riper's techniques of cancellations, pull-outs, and preparatory sets to modify his movements of stuttering. Before the clinician can teach these techniques, they must get the stutterer to reduce his avoidance of feared words. Cancellation is a model of what easy stuttering sounds and feels like (Peter & Guitar, 1991). Once the stutterer stutters on a word he or she is to say it a second time, with the cancellation method. Pull-outs is the attempt for the stutter to catch themselves in the act of stuttering, where then he must pull himself out of the word. Preparatory sets is when the stutterer prepares himself to use cancellation, and pull-outs to say the word. Once this phase has been perfected, the stutterer is ready to move on to the last stage, stabilization.

The purpose of the last phase, stabilization, is for the stutterer to stabilize his goals. In this phase, the clinician becomes a consultant. The stutterer eventually will assign his own therapy actives. Another goal in this phase is for the pull-out and cancellations to become automatic. Van Riper feels that it is important for the stutterer to modify his self-view from being someone who stutters to someone who speaks fluently most of the time (1982). Finally, the stutterer will be able to succeed on his own.

Another form of therapy is fluency shaping. In fluency shaping, the goal is to smoothly increase the fluent responses until they replace the moments of stuttering. The fluency is first established in the clinical setting, then taken into the person's daily

environment. There are two levels of fluency shaping. The first is a basal level of fluency. In the basal level, it is first established by having the stutterer produce short fluent responses. These fluencies are reinforced, and the stuttering may be stopped. In the second approach, the stutter establishes fluency by altering his speech pattern. Whichever approach is used, once it has been established, it is then taken into the person's environment.

After researching stuttering, it is discovered that stuttering is much more complex than originally thought. There has not been significant evidence to prove any one theory. In one theory stuttering is caused more by a combination of factors. Some believe that life events and a child's self concept are an important factor. In the assessment of stuttering, it is very important to observe the child in their environment, because how the child acts in their environment, helps the clinician determine what the child needs are. In conclusion, most stuttering can be corrected, although there are some cases that are not cured.

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